

## CLAIMS:

1. A magneto-optical recording medium comprising:
  - a substrate layer for supporting other layers;
  - a magnetic storage layer for information storage;
  - a magnetic reproduction layer for reproduction of the information of the magnetic storage layer for reading of the information;
  - a separation layer inter-located between the magnetic storage layer and the magnetic reproduction layer; and
  - at least one metal layer adjacent to the magnetic reproduction layer.
- 10 2. A magneto-optical recording medium as claimed in claim 1 wherein one of the at least one metal layers is inter-located between the storage layer and the reproduction layer.
3. A magneto-optical recording medium as claimed in claim 1 wherein one of the at least one metal layers is adjacent the reproduction layer in the opposite direction of the magnetic storage layer.
- 15 4. A magneto-optical recording medium as claimed in claim 1 wherein the magneto optical storage medium comprises two metal layers adjacent to the magnetic reproduction layer on each side of the magnetic reproduction layer.
- 20 5. A magneto-optical recording medium as claimed in claim 1 further comprising a reflection layer inter-located between the substrate and the storage layer.
6. A magneto-optical recording medium as claimed in claim 5 wherein:
  - the reflection layer is located on the substrate layer;
  - the magnetic storage layer is located on the first dielectric layer;
  - the separation layer is located on the magnetic storage layer;
  - the metal layer is located on the separation layer;
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the magnetic reproduction layer is located on the metal layer;  
a second dielectric layer is located on the magnetic reproduction layer; and  
a cover layer is located on the second dielectric layer.

- 5 7. A magneto-optical recording medium as claimed in claim 5 wherein:  
the reflection layer is located on the substrate layer;  
a first dielectric layer is located on the reflection layer;  
the magnetic storage layer is located on the first dielectric layer;  
the separation layer is located on the magnetic storage layer;  
10 the magnetic reproduction layer is located on the separation layer;  
the metal layer layers is located on the magnetic reproduction layer;  
a second dielectric layer is located on the metal layer; and  
a cover layer is located on the second dielectric layer.
- 15 8. A magneto-optical recording medium as claimed in claim 5 wherein:  
the reflection layer is located on the substrate layer;  
a first dielectric layer is located on the reflection layer;  
the magnetic storage layer is located on the first dielectric layer;  
the separation layer is located on the magnetic storage layer;  
20 a first metal layer of the two metal layers is located on the separation layer;  
the magnetic reproduction layer is located on the first metal layer;  
a second metal layer of the two metal layers is located on the magnetic  
reproduction layer;  
a second dielectric layer is located on the second metal layer; and  
25 a cover layer is located on the second dielectric layer.
9. A magneto-optical recording medium as claimed in claim 1 wherein the metal  
of the at least one metal layer comprises a transition metal.
- 30 10. A magneto-optical recording medium as claimed in claim 9 wherein the metal  
of the at least one metal layer comprises metal chosen from the group consisting of:  
a. Platinum  
b. Palladium  
c. Tantalum

- d. Zirconium
- e. Neobium
- f. Molybdenum
- g. Ruthenium
- h. Rhodium
- i. Copper
- j. Silver
- k. Gold; and
- l. Tungsten.

11. A magneto-optical recording medium as claimed in claim 1 wherein the at least one metal layer has a thickness of less than 2 nm.

12. A magneto-optical recording medium as claimed in claim 1 wherein the separation layer is a dielectric layer.

13. A magneto-optical recording medium as claimed in claim 1 wherein the at least one metal layer is coupled to the magnetic reproduction layer such that the at least one metal layer cause an increased Kerr rotation.

14. A magneto-optical recording medium as claimed in claim 1 wherein the at least one metal layer is coupled to the magnetic reproduction layer such that the at least one metal layer cause an increased heat dissipation.

15. A magneto-optical recording medium as claimed in claim 1 wherein the at least one metal layer is coupled to the magnetic reproduction layer such that the at least one metal layer cause an increased reflectivity.

16. A magneto-optical recording medium as claimed in claim 1 wherein the magneto-optical recording medium is a domain expansion medium.

17. A magneto-optical recording medium as claimed in claim 1 wherein the magneto-optical recording medium is a Magnetic Amplifying Magneto-Optical System (MAMMOS) medium.

18. A magneto-optical recording medium as claimed in claim 17 wherein the magneto-optical recording medium is an AC MAMMOS medium.

5 19. A magneto-optical recording medium as claimed in claim 17 wherein the magneto-optical recording medium is a ZF MAMMOS medium.

20. A magneto-optical recording medium as claimed in claim 16 wherein the magneto-optical recording medium is a Domain Wall Displacement Detection (DWDD)  
10 medium.